14. (new) An improved composition for nitrate removal and for the treatment of waste water streams, without pH adjustment, comprising: (1) a first component selected from the group consisting of clay absorbents, absorbent-adsorbent products, and organic modified clays and (2) a second component selected from the group consisting of :

a. highly insoluble crosslinked carbohydrate polymers with a branched-chain structure containing at least one moiety selected from the group of sulfides, disulfides, sulfonates, and sulfates;

b. crosslinked starch xanthates;

c. xanthates;

d. starch xanthate-xanthides;

e. a sulfur containing compound selected from the group consisting of 3-mercaptopropyltrimethoxysilane, 3-mercaptopropylmethyldimethoxysilane, starch xanthate Sulfamic acid adduct, dithiocarbonic acid, dithiocarbonic acid combined with 3-mercaptopropyltrimethoxysilane, dithiocarbonic acid combined with 3-mercaptopropyl-methyldimethoxysilane, xanthate combined with 3-mercaptopropyltrimethoxysilane, xanthate combined with 3-mercaptopropylmethyldimethoxysilane, and trisodium salt of 1,3,5-Triazine-2,4,6-(1H,3H,5H)-trithione, and

f. regenerated cellulose (Ground viscose);

wherein said composition is in solid form; and wherein said composition is used to treat waters without any need to adjust pH.

15. (new) A composition according to claim 14 wherein said first component is selected from the group consisting of silica Vulco hectorite clays; sodium bentonite clays; calcium bentonite; fuller's earth clays; aluminum siliceous clays; combinations of silica Vulco hectorite clays, sodium bentonite clays, calcium bentonite, fuller's earth clays, and aluminum siliceous clays; an organic modified sodium bentonite; an organic modified calcium bentonite; an organic modified mixture of both a sodium bentonite and a calcium bentonite; siliceous volclay; attapulgite clay; a hydrous silicate of aluminum generated from sodium bentonite; a hydrous silicate of aluminum generated from calcium bentonite; cross-linked montmorillonite molecular sieves; porous silicate glass; kaolin surface modified by polycyclopentadiene; tricalcium aluminate; calcium silicate hydrate with bulk density of 85–139 g/liter; silica xerogels; high-porosity silica xerogels; crystalline metal-organic microporous materials; surface altered zeolites; clinoptilolite, zeolite; Analcime; and Analcite; wherein said Analcite is comprised of $Na_2O.Al_2O_3.4SiO_2.2H_2O$; and wherein said calcium silicate hydrate is comprised of $Ca_6Si_6O_{17}(OH)_2$.

16. (new) A composition according to claim 14 wherein said second component is selected from the group consisting of: 25% amylose and 75% amilopectin having a branched-chain structure containing at least one moiety selected from the group consisting of sulfides, disulfides, sulfonates, and sulfates; crosslinked starch xanthate; starch xanthate-xanthide mixture crosslinked by a crosslinker selected from the group

consisting of 2-chloro-N,N-diethylacetamide, epichlorohydrin, sodium trimetaphosphate, phosphorous oxycloride, formaldehyde, glyoxal, acrolein, and N-methylol urea; a crosslinked starch xanthate containing moieties selected from the group consisting of sulfides and disulfides; starch xanthate- xanthide mixed compositions; starch xanthate-xanthide blends; dithiocarbonic acid; xanthate; 3-mercaptopropyltrimethoxysilane; 3-mercaptopropylmethyldimethoxy-silane; trisodium salt of 1,3,5-Triazine-2,4,6-(1H,3H,5H)-trithione; and regenerated cellulose modified with NaOH-Diethylaminoethyl chloride hydrochloride and crosslinked with epichlorohydrin wherein said cellulose has an exchange capacity of 0.65-0.95 milliequivalents per gram.

17. (new) A composition according to claim 14 wherein said organic modified clay is selected from the group consisting of:

(a) a subgroup of clays modified with at least one component selected from the group consisting of methyl-dihydrogenated tallow-amine (M2HT), dimethyl dihydrogenated tallow amine (2MHT), and other quaternary ammonium compounds having a moiety selected from the group consisting of chloride, methyl chloride, methyl dichloride, methyl sulfate and ethyl sulfate;

(b) clay modified by a quaternary ammonium compound of the formula

$[N(+)R_{1,2,3,4}] (Cl^-)]$;

(c) clay protonized by organic acid;

(d) clay modified with a compound selected from the group consisting of quaternized dihydrogenated-tallowamine (2HT), protonized 2HT, methyl chloride of high alkyl amine(C_{12}-C_{24}), dimethyl chloride of high alkyl amine(C_{12}-C_{24}), methyl sulfate of high alkyl amine(C_{12}-C_{24}), dimethyl sulfate of high alkyl amine(C_{12}-C_{24}), alkylaryl moiety quaternary ammonium ions, alkylated diazobicyclo ions, 1,4-diazobicyco[2,2,2.]octane, alkyl diammonium cations, decyltrimethyldiammonium (DTMA), and quaternary ammonium salts selected from the group consisting of dimethyl-dihydrogenatedtallow ammonium chloride (DMHT), methyl-dihydrogenated-tallowamine (M2HT), dehydrogenatedtallow-amine, and dimethyl-dihydrogenated-octadecylbenzylammonium chloride (DMHT-B); and

(e) amine modified clay modified by at least one component selected from the group consisting of hydrophobic alkylamines, stearyl amine, primary hydrogenated tallow amine, di-hydrogenated tallow amine, and N-alkyl(tallow)-1,3-propane diamine; wherein said clay of said amine modified clay is selected from the group of high swelling sodium bentonite and calcium bentonite; and wherein said amine modified clay is also protonized by at least one acid selected from the group consisting of mono organic acid, diacid, C_4-C_{18} acid , hydroxy acids, glacial acetic acid, hydroxy glycolic acid, and di-glycolic acid; and wherein said subgroup comprises at least one modified clay selected from the group consisting of Hectorite, Bentonite, Hectorite-Bentonite clay, and high swelling sodium bentonite Vulco clay.

18. (new) A composition according to claim 14 wherein said solid form is selected from the group consisting of granules and pellets.

19. (new) The composition according to claim 14 wherein said absorbent-adsorbent product is selected from the group consisting of aluminum silicates, calcium aluminum silicates, magnesium silicates, calcium silicates, calcium magnesium silicates, siliceous volclay, attapulgite clay, a hydrous silicate of aluminum generated from sodium bentonite, a hydrous silicate of aluminum generated from calcium bentonite, cross-linked montmorillonite molecular sieves, porous silicate glass, kaolin surface modified by polycyclopentadiene, tricalcium aluminate, calcium silicate hydrate with bulk density of 85 – 139 g/liter, silica xerogels, high-porosity silica xerogels, crystalline metal-organic microporous materials, surface altered zeolites, clinoptilolite, zeolite Analcime, Analcite, and combinations of at least two compounds selected from the group consisting of aluminum silicates, calcium aluminum silicates, magnesium silicates, calcium silicates, and calcium magnesium silicates; wherein said calcium silicate hydrate is comprised of $Ca_6Si_6O_{17}(OH)_2$; and wherein said Analcite is comprised of $Na_2O.Al_2O_3.4SiO_2.2H_2O$.

20. (new) The composition of claim 17 wherein said organic modified clays are further mixed with at least one cellulose component selected from the group comprising modified cellulose fibers, hydrophobic brown cellulose, natural cellulose fiber, kenaf

fiber, kenaf cellulose, high crosslinked starch xanthate, adipoguanamine surface modified cellulose, adipoguanamine silicone surface modified cellulose, adipoguanamine surface modified kenaf, adipoguanamine silicone surface modified kenaf, polymethylene urea surface modified cellulose, polymethylene urea silicone surface modified cellulose, polymethylene urea surface modified kenaf, polymethylene urea silicone surface modified kenaf, and calcium sulfate hemihydrate cellulose derivatives.

21. (new) A composition according to claim 20 wherein said modified cellulose fiber comprises cellulose (38%), lignin (18%), pectin (33%) and protein substances (11%).

22. (new) A composition according to claim 14 comprising:

(a) up to 70 parts, high swelling sodium bentonite;

(b) from 10 to 70 parts, calcium bentonite;

(c) up to 70 parts, zeolite; and

(d) at least one component selected from the group consisting of:

(1) up to 20 parts, insoluble carbohydrate polymer of highly crosslinked yellow starch xanthate (PR-XIS 100);

(2) from 0.5 to 70 parts, insoluble carbohydrate polymer crosslinked starch xanthate alloy with sulfamic acid; and

(3) from 70 to 0.1 parts, 1,3,5 triazine-trithione salt PR-XIS 210.

23. (new) A composition according to claim 14 which further comprises at least one polyelectrolyte flocculant selected from the group consisting of cationic polyelectrolytes, anionic polyelectrolytes, and nonionic polyelectrolytes.

24. (new) A composition according to claim 22 which further comprises at least one compound selected from the group consisting of activated carbon, anthracite, charcoal, and lignin.

25. (new) A composition according to claim 17 wherein said organic modified clay comprises at least one of said clays reacted with at least one amine selected from the group consisting of protonized primary (C_{12}-C_{22}) alkyl amines, protonized secondary (C_{14}-C_{28}) alkyl amines, protonized secondary (C_{14}-C_{28}) alkyl diamine, protonized tertiary (C_8-C_{30}) alkyl amine, and quaternary ammonium compounds having at least one moiety selected from the group consisting of chlorine, COO-, (OH) CH (CHO) COO-, -SO_4, -SO_3, -CH (OH) COOY, CH_3COO-, hydroxyalkyl (OH) COO-, -NCH(OH)(CHO), Cl^-, and Br^- and wherein Y can be any organic or inorganic moiety capable of binding to the

carboxylic structure of the hydroxy acid moiety.

26. (new) A composition according to claim 14 wherein said organic modified clay is modified with at least one amine selected from the group consisting of: methyl dihydrogenated tallow ammonium chloride; dimethyl dihydrogenated tallow ammonium chloride; dimethyl dihydrogenated dicoco ammonium chloride; dimethyl (C_{12}-C_{17}) alkyl ammonium chlorides; N, N, N, N, N-pentamethyl-N-Tallowalkyl-trimethylene-dichlorides; benzyl ammoniumorgano clays; N-Alkyl-1, 3-propane fatty diamine; ether diamine; (C_8-C_{23}) tertiary amines; and dihydrogenated tallow amine.

27. (new) A composition according to claim 21 wherein said cellulose comprises kenaf cellulose.

28. (new) A composition according to claim 23 wherein said at least one polyelectrolyte flocculant is selected from the group consisting of anionic polyelectrolytes.

29. (new) A composition according to claim 14 which further comprises at least one compound selected from the group consisting of activated carbon, anthracite, charcoal, and lignin.

30. (new) An improved composition for nitrate removal and for the treatment of waste water streams, without pH adjustment, comprising: (1) a first component selected from the group of clay absorbents, absorbent-adsorbent products, and organic modified clays and (2) a second component selected from the group consisting of activated carbon, anthracite, charcoal, and lignin; wherein said composition is in solid form; and wherein said composition is used to treat waters without any need to adjust pH.

31. (new) An improved composition for nitrate removal and for the treatment of waste water streams, without pH adjustment, comprising at least one component selected from the group consisting of:

(a) up to 70 parts, high swelling sodium bentonite;

(b) up to 70 parts, calcium bentonite;

(c) up to 70 parts, zeolite; and

(d) up to 70 parts, organic modified clay; and

at least one component selected from the group consisting of:

(e) up to 20 parts, insoluble carbohydrate polymer of highly crosslinked yellow starch xanthate (PR-XIS 100);

(f) from 0.5 to 70 parts, insoluble carbohydrate polymer crosslinked starch xanthate alloy with sulfamic acid; and

(g) from 70 to 0.1 parts, 1,3,5 triazine-trithione salt PR-XIS 210.

32. (new) A composition according to claim 31 which further comprises at least one compound selected from the group consisting of activated carbon, anthracite, charcoal, and lignin.

33. (new) A composition according to claim 14 comprising: (1) a first component selected from the group consisting of clay absorbents, absorbent-adsorbent products, and organic modified clays and (2) a second component selected from the group consisting of highly insoluble crosslinked carbohydrate polymers with a branched-chain structure containing at least one moiety selected from the group of sulfides, disulfides, sulfonates, and sulfates; crosslinked starch xanthates; starch xanthate-xanthides; trisodium salt of 1,3,5-Triazine-2,4,6-(1H,3H,5H)-trithione; and regenerated cellulose (Ground viscose); wherein said composition is in solid form; and wherein said composition is used to treat waters without any need to adjust pH.

The following comments are included to help the Examiner in relating the new claims to the original ones.

Claims 14, 18, 29, 30, and 33 are derived from claim 1.

Claim 15 is derived from claim 2.

Claim 16 is derived from claim 3.

Claim 17 is derived from claims 4 and 5.

Claim 19 is derived from claim 6.

Claim 20 is derived from claim 7.

Claims 21 and 27 are derived from claim 8.

Claims 22, 31, and 32 are derived from claim 9.

Claim 23 and 28 are derived from claim 10.

Claim 24 is derived from claim 11.

Claim 25 is derived from claim 12.

Claim 26 is derived from claim 13.

THE REJECTION UNDER 35 U.S.C. § 102(b)

The Examiner rejected all the original claims 1-13 under 35 U.S.C. § 102(b) as being anticipated by Perman U.S. Patent No. 5,071,587, especially noting examples 6 and 7 and the abstract. However, all of the examples and abstract of the '587 patent require the presence of a biocide. TGHPI is the biocide present in examples 6 and 7 while biocide is specifically recited as part of the composition in the abstract and claims. Since the goal of Perman is to obtain safe drinking water, the compositions of Applicant's invention would not be anticipated by Perman and indeed would be useless

for Perman's purpose given the lack of biocide.

Further, Perman does not teach against the need for nor the use of pH control agents. In fact, examples 1-5 all contain pH controlling salts. Quite the opposite, Perman discloses the need for charge neutralization (column 12, lines 55-58). The Applicant's invention is clearly different as the inventive compositions do not require pH adjustment.

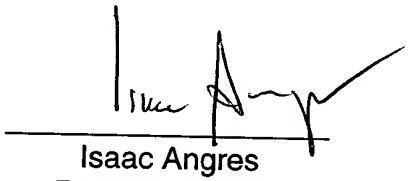
Additionally, while Perman discloses the use of polymeric flocculants/coagulants, at no time does he disclose polymeric carbohydrates nor their derivatives as part of the useful group of flocculants/coagulants. His examples are all synthetics, primarily acrylic, allyl, or vinyl derivatives. Hence the required flocculant/coagulant of Perman's formulation would not include polymeric carbohydrate and therefor could not anticipate the Applicant's compositions containing polymeric carbohydrate and carbohydrate derivatives.

Lastly, Perman requires the presence of both a zeolite and a clay in his compositions. The Applicant does not.

No additional fees are needed as the total number of claims does not exceed 20 and there are no more than three independent claims.

In view of the above, it is submitted that the claims are now in condition for allowance. Reconsideration and withdrawal of the rejections and objections are requested. Allowance of claims 14-33 at an early date is solicited.

Respectfully submitted,



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